

## REMARKS

Claims 2-4 and 8-13 have been canceled, and new claims 14-17 have been added.

No new matter was added. Thus, claims 1, 7 and 14-17 are pending for further prosecution in the present application. All pending claims are directed to the elected invention in the present application. Independent claims 1 and 7 have been amended to distinguish over the prior art of record. No new matter was added. Accordingly, Applicant respectfully submits that the present application is in condition for allowance.

### **I. Objection to the Specification/Abstract**

The Abstract of the present application has been amended to contain no more than 150 words. A clean form of the Abstract is provided on a separate page attached to this Amendment. Applicant respectfully requests approval of the amended Abstract.

### **II. Claim Rejections - 35 USC §102(b)**

*In the non-final Office Action dated November 18, 2010, claims 1 and 7 are rejected under 35 USC §102(b) as being anticipated by U.S. Patent No. 6,531,396 B1 issued to Chi et al.*

Independent claim 1 has been amended to include the limitation recited in dependent claim 2, as filed, and independent claim 7 has been amended to include the limitation recited in dependent claim 8, as filed. No new matter was added.

Accordingly, Applicant respectfully submits that the anticipation rejection of claims 1 and 7 has been overcome and should be withdrawn. For this reason, Applicant respectfully requests reconsideration and removal of the §102(b) rejection.

### III. Claim Rejections - 35 USC §103(a)

- A. *In the non-final Office Action dated November 18, 2010, claims 1, 2, 7 and 8 are rejected under 35 USC §103(a) as being obvious over U.S. Patent No. 6,531,396 B1 issued to Chi et al.*

In rejecting claims 7 and 8, the following is stated in the Office Action:

“With respect to the recitation ‘having a purity of 99.99% or higher’ in claims 2 and 8, Chi et al. (‘396) discloses either using a nickel-platinum target or co-sputtering a pure nickel target and a pure platinum target (cols. 1 and 2). Chi et al. (‘396) therefore desires only depositing pure materials on the semiconductors. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to only use pure metals in the sputtering targets that would be used in the semiconductors of Chi et al. (‘396). Alternatively, Chi et al. (‘396) does not specify that the Ni-Pt alloy would have ‘a purity of 99.99% or higher’ as in claims 2 and 8. However, merely purifying a prior art product would not be sufficient to patentably distinguish from that prior art product.”

Turning to the Chi et al. patent, it expressly states the following on column 2, lines 32-46:

“Preferably, the nickel/platinum layer is deposited by sputtering a nickel/platinum alloy target.

Alternatively, the nickel/platinum layer is deposited by co-sputtering a pure nickel target and a pure platinum target.

Further, in the alternative, the nickel/platinum layer is deposited by the sequential deposition of nickel and platinum.

Conveniently, any excess nickel/platinum which has not reacted with the silicon region is removed from the semiconductor device.

Advantageously, the nickel/platinum layer has a nickel content of between 90 and 99% and a platinum content of between 1 and 10%.

Preferably, the nickel content is 95% and the platinum content is 5%.”

This same disclosure is essentially repeated on column 3, lines 12-23, of Chi et al., as follows:

“A nickel-platinum alloy film is deposited on the surface of a silicon semiconductor structure using conventional deposition techniques such as sputtering, electron-beam evaporation, or filament evaporation. If the sputtering method is used, then the nickel-platinum alloy film can be deposited by sputtering nickel-platinum alloy target or by co-sputtering a pure nickel target and a pure platinum target. Alternatively, the layers can be deposited sequentially, with either the nickel or the platinum layer being deposited first. The resultant

nickel/platinum layer has a nickel content of between 90 and 99% and a platinum content of between 1 and 10%. A 5% platinum content is preferred.”

Applicant respectfully submits that the Examiner has misinterpreted the proper context of the word “pure” as intended by the Chi et al. patent. As recited in the above two sections of Chi et al., Chi et al. disclose the use of a Ni-Pt alloy sputtering target or, in the alternative, co-sputtering a separate Ni target and a separate Pt target. In this instance, Chi et al. use the terms “pure nickel target” and “pure platinum target”. The context of “pure” is that the Ni target is made of nickel, not an alloy, and that the Pt target is made of platinum, not an alloy. One of ordinary skill in the art is aware that, in a “co-sputtering” operation, separate targets of different “pure” materials are sputtered simultaneously to form an alloy thin film as opposed to using an alloy target to form the alloy film. Here, “pure” refers to a simple metal nickel target or a simple metal platinum target, and not a target made from a Ni-Pt alloy.

The word “pure” as used by Chi et al. states nothing with respect to the purity of the targets or the content of impurities of the targets. For instance, a “pure” nickel target could have a purity of 90% (1N). Thus, Applicant respectfully requests removal of at least this portion of the obviousness rejection because Chi et al. are not and do not refer to the purity (or content of impurities) of the target.

In the Office Action, it is also stated that if “Chi et al. (‘396) does not specify that the Ni-Pt alloy would have ‘a purity of 99.99% or higher’ as in claims 2 and 8”, then claims 2 and 8 are obvious because “merely purifying a prior art product would not be sufficient to patentably distinguish from that prior art product.” Applicant respectfully disagrees that the present invention is directed to merely purifying a prior art product.

As best discussed on pages 1 and 2 of the present application, as filed, Ni-Pt alloy targets such as the alloy target disclosed by Chi et al. were conventionally manufactured utilizing a

powder metallurgy process in which Ni and Pt powders are mixed and sintered to form a sputtering target. At the time the present invention was made, sintered targets would be used by one of ordinary skill in the art. Such targets would have Vickers hardness well above that required by the claims of the present application.

At the time the present invention was made, one of ordinary skill in the art would have been aware that a melted and cast Ni-Pt alloy ingot is extremely hard and brittle and has a Vickers hardness that is too high for the ingot to be subject to rolling without fracturing. See page 1, lines 13-27, of the present application, as filed. Thus, this is the reason that one of ordinary skill in the art at the time of the invention would have relied upon sintering Ni-Pt targets from powders.

An exception is the target discussed on page 1, line 31, to page 2, line 10, of the present application, as filed. Here, the Ni-Pt alloy is melted and cast in a water-cooled mold for the sole purpose of avoiding rolling processing of hard and brittle Ni-Pt alloys. However, such an alloy does not have a uniform crystal structure and would still be extremely hard and brittle with a Vickers hardness that is too high for the molded alloy to be subject to plastic working such as rolling without fracturing.

An important aspect of the present invention is that “the present inventors discovered that by increasing the purity of the Ni-Pt alloy, it is possible to significantly reduce the hardness of the Ni-Pt alloy ingot”. See page 2, lines 17-19, of the present application, as filed. At the time the present invention was made, one of ordinary skill in the art would not have been aware of this new discovery made by the inventors. This was entirely unexpected result. One of ordinary skill in the art certainly cannot derive this teaching from the disclosure provided by the cited Chi

et al. patent. No prior art of record establishes that this discovery was known to one of ordinary skill in the art before the present invention was made.

The U.S. Court of Appeals for the Federal Circuit has repeatedly warned against using an Applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings in the prior art. See, for instance, Grain Processing Corp. v. American Maize-Products, 840 F.2d 902, 5 USPQ2d 1788 (Fed. Cir. 1988). A critical step in analyzing the patentability of claims pursuant to a §103 rejection is casting the mind back to the time of invention, to **consider the thinking of one of ordinary skill in the art, guided only by the prior art references**. Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher."

Here, the thinking of one of ordinary skill in the art at the time the present invention was made is best described on pages 1 and 2 of the present application, as filed. One of ordinary skill in the art was aware that Ni-Pt alloy targets are brittle and extremely hard having Vickers hardness too high for rolling. This was believed true irrespective of purity. Thus, one of ordinary skill in the art at the time the present invention was made would have heeded this knowledge and prepared Ni-Pt targets in a manner not require rolling or plastic working and not requiring Vickers hardness to be reduced to the levels recited in the claims of the present application.

In contrast, based on the discovery made by the present inventors, the present inventors melt and cast an ingot that has a sufficiently low Vickers hardness enabling cool rolling at room temperature without experiencing cracks or fractures. This is only taught by the present

invention, and not by the prior art of record. At the time the invention was made, common sense would have lead one of ordinary skill in the art away from rolling or plastic working targets made of Ni-Pt alloys.

For the above stated reasons, Applicants respectfully request reconsideration of the above referenced obviousness rejection of the claims of the present application.

New claims 14-17 are supported by the disclosure provided on page 4, lines 24-33, and page 5, lines 21-24, of the present application, as filed. No new matter was added.

Accordingly, Applicants respectfully submit that claims 1, 7 and 14-17 are patentable and are not obvious in view of the mere teaching of a Ni-Pt alloy sputtering target and composition disclosed by the Chi et al. patent. Chi et al. fail to disclose any limitations with respect to the hardness of the target as required by the claims of the present invention, how the hardness can be reduced, and if it is even desirable to reduce hardness.

#### **IV. Conclusion**

In view of the above amendments and remarks, Applicant respectfully submits that the rejections have been overcome and that the present application is in condition for allowance. Thus, a favorable action on the merits is therefore requested.

Please charge any deficiency or credit any overpayment for entering this Amendment to our deposit account no. 08-3040.

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